

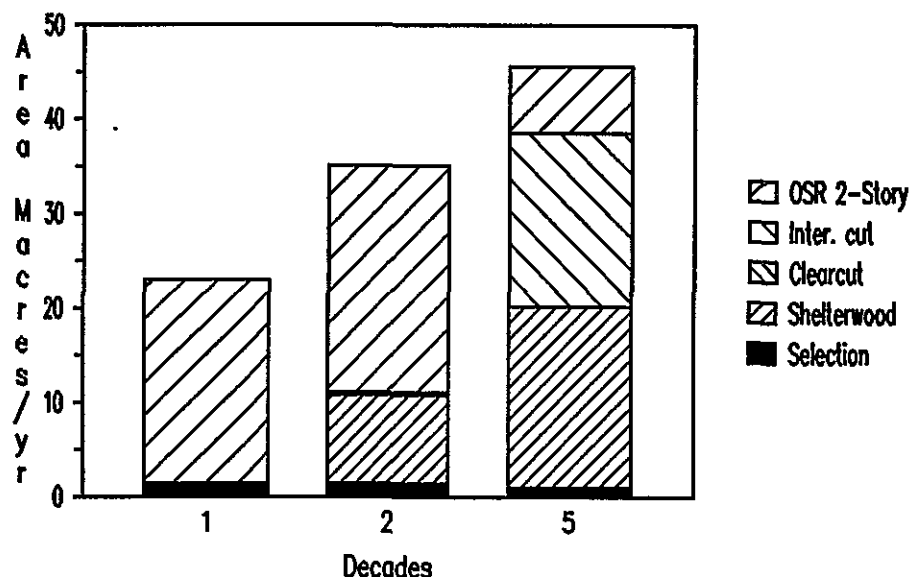
**6. Maximum Animal Unit
Months Benchmark**

- a Description This benchmark estimates the maximum capability of the Forest to provide commercial livestock grazing subject to rotation-age restrictions, nondeclining yield, and Management Requirements.
- b Purpose The purpose of this benchmark is to estimate the maximum level of livestock animal unit months which the Forest could provide
- c FORPLAN Objective Maximize animal unit months for 15 decades.
Function
- d Assumptions and Constraints
- Timber harvest is scheduled only on lands classified as "suitable" through the suitability analysis.
- Management Requirements are constraints.
- Nondeclining evenflow at or below long-term sustained yield capacity.
- Rotations based on 95 percent of culmination of mean annual increment
- Ending inventory constraint applied
- Only the benefits and variable costs associated with the timber and livestock outputs are considered
- Selection harvest only in riparian areas (except lodgepole pine) in order to meet water quality (temperature) standards and other riparian area resource needs.
- Old-growth acres (44,860) necessary to maintain viable wildlife populations were removed from land base available for timber harvest
- Harvest dispersion constraints
- (1) Less than or equal to 25 percent per decade of mixed conifer and ponderosa pine in riparian areas;
 - (2) Less than or equal to 10 percent per decade of lodgepole pine in riparian areas,
 - (3) Less than or equal to 38 percent per decade on all other available lands for shelterwood final harvests,
 - (4) Less than or equal to 25 percent per decade on all other available lands for clearcut final harvests.
- All constraints are applicable throughout the planning horizon (150 years)

e. Timber

This benchmark run produced a long-term sustained yield capacity 52.4 million of cubic feet per year with a first decade harvest volume of 46.9 million cubic feet per year (254.8 million board feet per year). This includes approximately 4.3 million cubic feet per year (13.0 million board feet per year) due to mortality salvage and nonchargeable timber volume. This total volume will exceed the volume production goals for the Malheur National Forest called for in the "Forestry Program for Oregon" for all five decades. See Table B-18 for volume of timber harvest by decade. The species mix for the first three decades is approximately 60 percent ponderosa pine and 40 percent mixed conifer species. The last two decades will produce a species mix of 70 percent mixed conifer species and 30 percent ponderosa pine. See Figure B-29 for the harvest methods used to achieve these volumes by decades. In addition, there is an average forest residue potential of 46.3 million cubic feet per year produced over the planning period. (See Figure B-30.)

**FIGURE B-29
HARVEST METHODS**



To achieve the projected harvest volumes, there will be an increase in precommercial thinning acres over the 50-year period. General trends indicate increasing levels of precommercial thinning through the fifth decade. Reforestation (planting) occurs only in the first decade. See Figures B-31 and B-32 for precommercial thinning and planting acres.

f. Range Management

Range livestock forage availability on commercial forest land rises slowly through the five-decade period. On nonforested land, it increases to high levels in Decade 2 and then remains constant. See Figure B-33 for increase in animal unit months by decade.

The increases are achieved through capture of forage production as a result of timber harvest activity, stocking level control, and installation of structural and nonstructural range improvements

FIGURE B-30

OTHER WOOD FIBER AND PERSONAL USE FIREWOOD

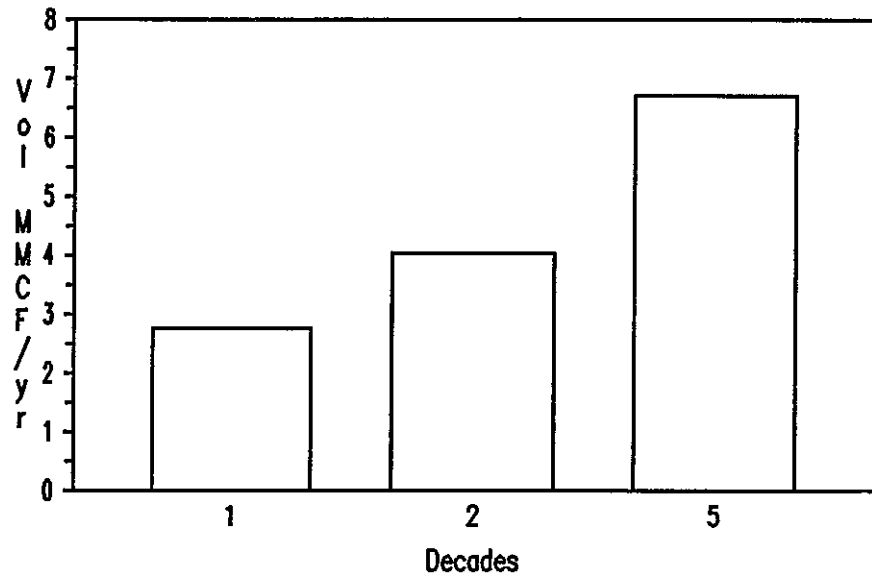
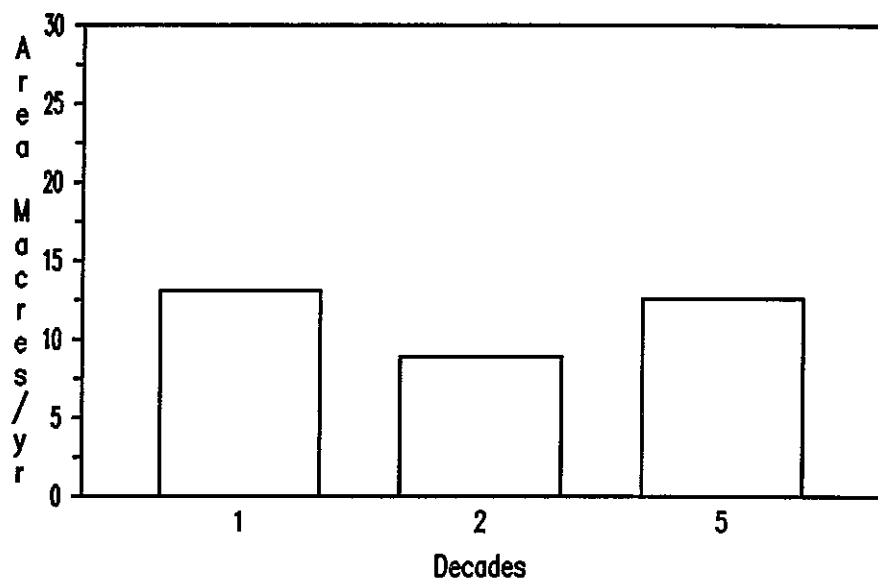


FIGURE B-31

PRECOMMERCIAL THINNING



Big-game habitat capability steadily moves toward optimum through the fourth decade, but by the fifth decade habitat capability begins to move away from optimum (Figure B-35) as cover falls below the optimum range.

Estimated elk numbers (per forage availability) on both winter and summer ranges decrease in the second decade and remain at this level at the fifth decade (Figure B-34) Elk numbers were estimated by forage availability and a discount for less than optimum cover conditions only. No other factor such as hunting, predation, roading, weather, or Habitat Effectiveness Indices, were used to estimate the hypothetical population capacity of this benchmark

FIGURE B-32
REFORESTATION (PLANTING)

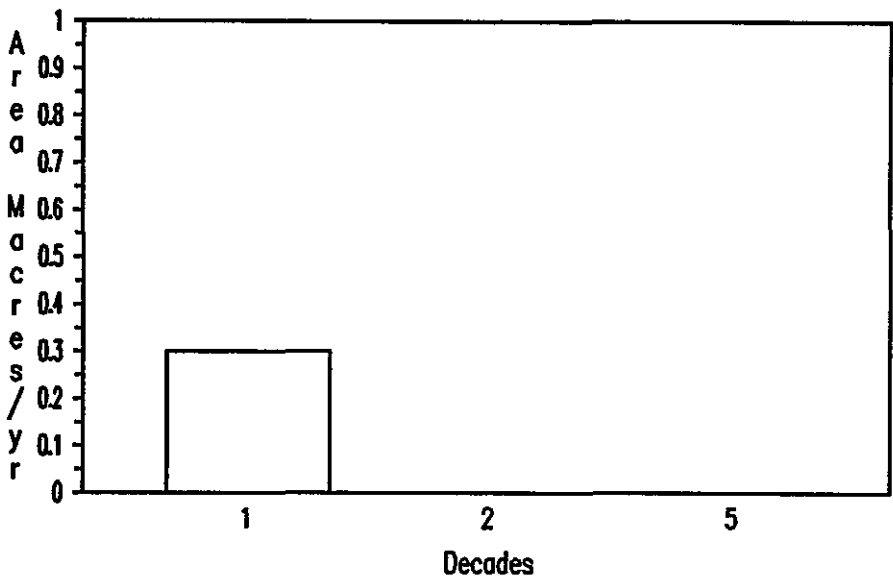


FIGURE B-33
LIVESTOCK

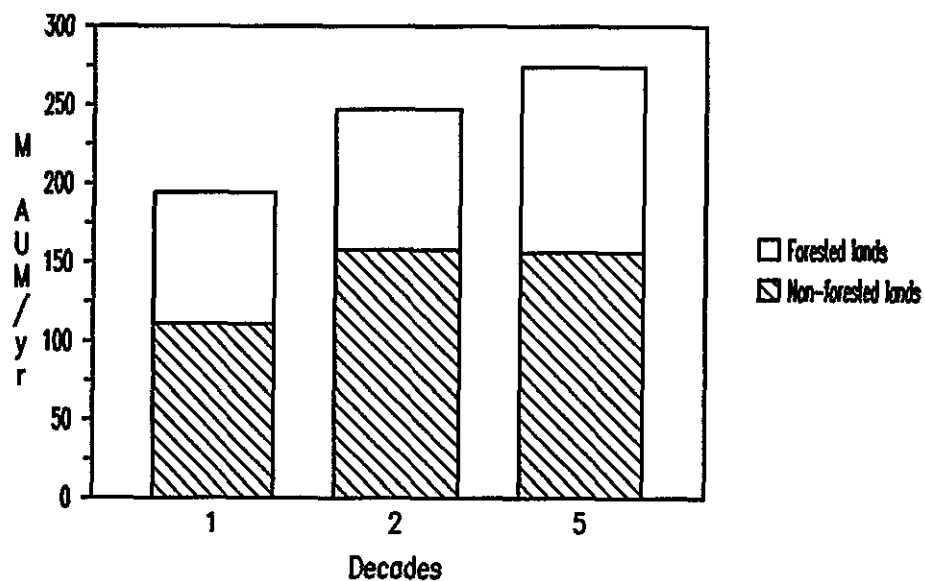


FIGURE B-34
ESTIMATED ELK NUMBERS (per forage availability)

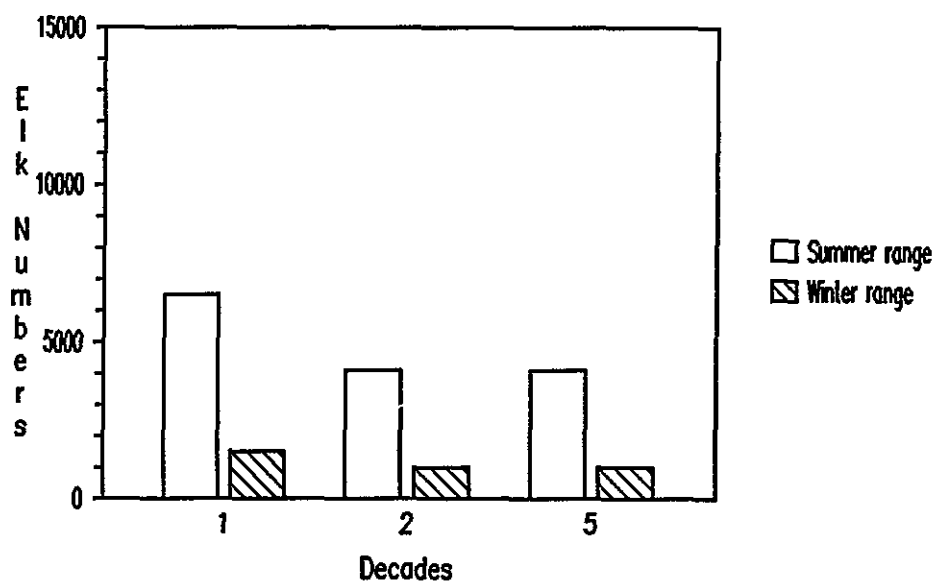
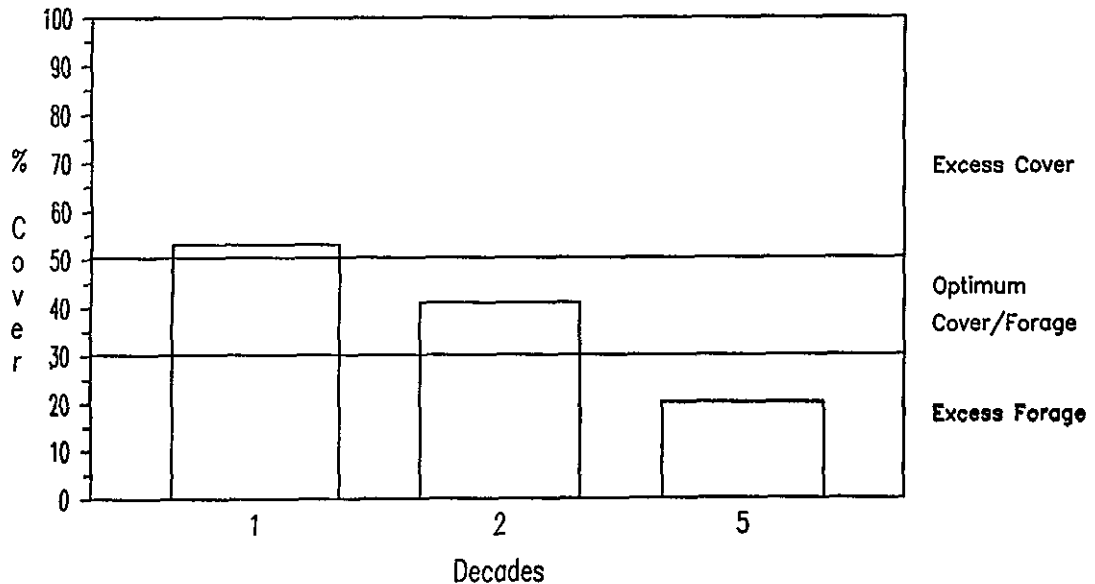


FIGURE B-35
BIG-GAME HABITAT CAPABILITY



Cover in the above figure refers to an undefined combination of satisfactory and marginal cover categories

h Old Growth

Old growth acres will fall steadily through the fifth decade to the Management Requirement level of 44,860 acres

i. Fisheries

This benchmark is constrained to meet Management Requirements. In terms of water quality and fish habitat, the constraints which are most important are those which specify selection harvest in riparian areas and cause the harvest to be more or less evenly distributed over time. These constraints are primarily aimed at temperature regulation

Within the limits of our ability to predict changes on such a broad scale, it appears that this run is at least close to providing for shading requirements. On-the-ground implementation of this prescription could probably make the necessary adjustments to meet shade requirements from the perspective of timber management. Timber harvest in riparian areas would nearly double from the current situation. The emphasis on analysis and coordination of project planning would be even greater under this management scenario than currently.

Road construction and reconstruction decrease a little from the current situation. We are assuming that best management practices for timber harvest activities, including roading, will meet State water quality standards for sediment and turbidity

The number of Animal Unit Months from this benchmark more than doubles by the third decade. This output is achieved by assuming a larger cost for redistributing livestock out of riparian areas and by intensively managing nonriparian areas to maximize livestock production. Thus, although the total animal unit month output for the Forest more than doubles from the current situation, livestock use in riparian areas remains constant at the current level. We can assume that riparian vegetation condition would be maintained at the current condition. Investment in habitat improvements, including bank stabilization and riparian planting, are assumed to continue at a relatively low level, being accomplished primarily through the K-V program. The net result should be a stable fish habitat condition over time, with improvements due to investments which offset the impacts of higher output production.

External funding for fish habitat improvement projects (such as the Bonneville Power Administration anadromous fish program) could continue to the extent that such investments are consistent with other ongoing management. Actual fish habitat condition could improve in proportion to the amount of external funding, with the upper limit of this potential improvement somewhat less than the potential improvement under the current situation.

j Water See summary analysis, Section VI C 10 d.

k Recreation Developed Recreation. Developed recreation opportunities would be provided through the maintenance of existing facilities. Demand for developed recreation would be met through the fifth decade.

Dispersed Recreation. 100 percent of semiprimitive recreation opportunities outside wilderness would be eliminated by the end of the first decade.

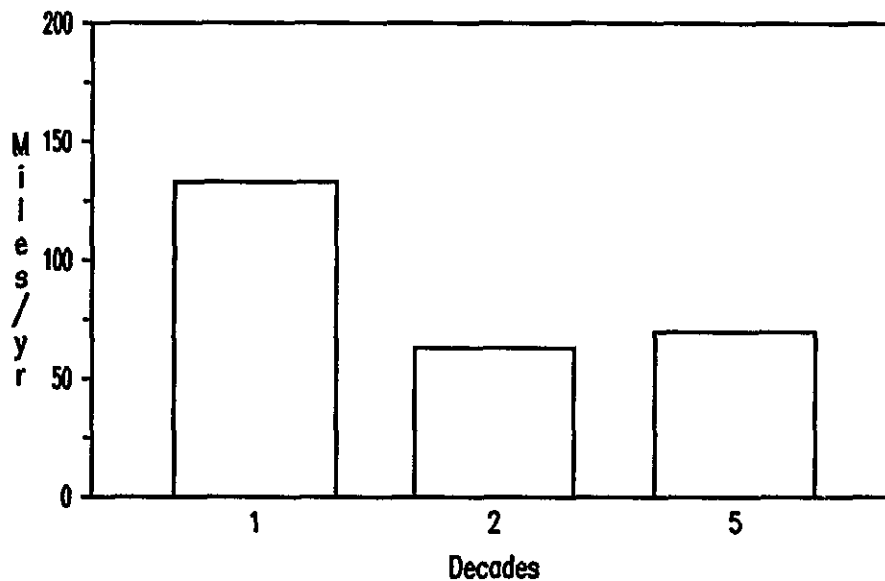
Visual Resources The existing viewshed corridors on the Forest will have a heavily altered appearance with some exceptions where riparian or old-growth areas lie adjacent to sensitive roads. In these cases the landscape may look moderately altered. The Forest in general will have a heavily altered appearance.

Cultural Resource Cultural resources will be inventoried prior to the implementation of potentially impacting management activities. The number of acres managed for cultural resource values is primarily influenced by the acres of timber to be harvested annually. New acres will accumulate until all lands suitable for timber production have been surveyed and cultural resources located. Thereafter, new cultural resource management acres will continue to accrue as other Forest acres are examined.

l Transportation Arterial and collector construction and reconstruction will remain constant over time. The reason for this is the dispersion of harvest and recreational activities across the Forest. This assumption of a constant program also applies to maintenance levels 1, 3, 4, and 5 of the road maintenance program. Since local roads are usually used by only high-clearance vehicles, they fall into the maintenance level 2 which will change over time.

The local road system construction and reconstruction program also varies over time. This is shown in Figure B-36. This graph shows a decrease in road construction miles after the first decade followed by a fairly constant program.

FIGURE B-36
LOCAL ROAD CONSTRUCTION/RECONSTRUCTION



m. Fire Protection

The cost of protection (dollars per million acres protected) will not vary by benchmark or alternative. Eighteen protection alternatives were run through the Fire Management Analysis process and the most cost-efficient alternative was selected. Differences in benchmarks or alternatives will probably have no measurable effect on the Fire Management Effectiveness level selected.

Method of Measurement. Fire Management Effectiveness is measured by adding appropriated Forest Fire Protection dollars to Emergency Firefighting costs and resource loss values. Program Effectiveness is computed by averaging the annual cost over a decade.

TABLE B-18
BENCHMARK MAX AUMs

Output/Effect	Unit of Measure/yr	1st Decade	2nd Decade	5th Decade
RECREATION				
Developed Use	M RVDs	0	0	0
Dispersed Use				
Semi-Primitive				
Non-Motorized	M RVDs	0	0	0
Semi-Primitive				
Motorized	M RVDs	0	0	0
Roaded Natural	M RVDs	1,949	976.1	0
Roaded Modified	M RVDs	1,542	2,633	3,294
Wilderness	M RVDs	61 8	61 8	61.8
WILDLIFE AND FISH				
Elk (Summer)	Numbers	6,500	4,100	4,100
Anadromous Fish	M Pounds	N/A	N/A	N/A
Big-Game Use ^{1/}	M WFUDs	66 2	55.3	55.2
Fish Use ^{1/}	M WFUDs	N/A	N/A	N/A
RANGE				
Livestock Use	M AUMs	194 3	246 9	273 9
TIMBER				
LTSYC	MM Cu Ft	----- 52 4 in Decade 14 -----		
Programmed Sale	MM Bd Ft	254 8	N/A	N/A
Offered ^{2/}	MM Cu Ft	46 9	46.9	46.9
Other wood fiber and				
Personal firewood	MM Cu Ft	2.76	4.05	6.71
Volume by species				
Ponderosa Pine	MM Cu Ft	25 2	26.2	12 6
Mixed Conifer	MM Cu Ft	16 9	15.8	29.7
Lodgepole Pine	MM Cu Ft	0.2	0	0
Harvest Method				
Overstory Removal				
Two-story stand	M Acres	21.6	24.0	7 1
Intermediate cut	M Acres	0	0	18.3
Clearcut	M Acres	0 2	0.3	0
Shelterwood cut	M Acres	0 2	9 4	19.2
Selective cut	M Acres	1 0	1.4	1 0
Precommercial thin	M Acres	13.1	8 9	12 6
Reforestation (Plant)	M Acres	0 3	0	0
WATER QUALITY				
Sediment	Index	N/A	N/A	N/A
Water Yield	M Acre Feet	620	620	620
FIRE				
Fire Effective Index	\$/M Acres	1,344	1,344	1,344
Fuel Treatment	M Acres	28 7	35 5	47 3
FACILITIES				
Passenger Car	Miles	1,472	1,472	1,472
High-Clearance Vehicle	Miles	5,371	5,301	5,291
Constr & Reconstr.	Miles	133	63	70

^{1/}Included in recreation visitor days recreation.

^{2/}Including 4.3 million cubic feet per year salvage.